AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (Currently amended): A ~~location information transmission~~ method for identifying a location using a first digital map that is different from a second digital map ~~reporting on-road location information on a first digital map by an information transmission system~~, comprising the steps of:

~~transmitting on-road~~ creating location information based on the first digital map by ~~an information provider~~ a transmitting system, the ~~on-road~~ location information including: ~~a string of coordinates line information~~ a list of points on a road segment of the first digital map, the points representing a road shape of [[a]]the road ~~section;~~ segment; and ~~additional information including~~ attribute information on said points ~~road section or nodes in said road section~~;

transmitting the location information from the transmitting system;

receiving said ~~on-road~~ location information by a ~~receiver~~ receiving system having [[a]] the second digital map, the second digital map including data representing the road segment, said data being different from the list of points; and

performing ~~shape~~ matching of said points with said data to identify said road ~~section~~ segment on the second digital map ~~of the receiver based on the string of coordinates line information and the additional information~~ using coordinates information of the points and the attribute information included in the location information.

Claim 2 (Currently amended): A location information transmission The method according to claim 1, wherein a string of coordinates the list of points where includes coordinate data indicating [[the]]positions of [[the]]nodes and interpolation points included in said road section are segment arranged sequentially is used as said string of coordinate information.

Claim 3 (Currently amended): A location information transmission The method according to claim 2, wherein an interpolation point that contributes less to shape matching is omitted from the interpolation points included in said road section segment.

Claim 4 (Currently amended): A location information transmission The method according to claim 3, wherein said interpolation point is omitted from said interpolation points where a change in bearing is less than a predetermined angle with respect to bearing from an adjacent interpolation point or node and a distance from said interpolation point or node is less than a predetermined distance.

Claim 5 (Currently amended): A location information transmission The method according to claim 2, wherein said string of coordinate information list of points comprises coordinate data of a member chosen from a group of nodes and interpolation points included in said road section segment, the coordinate data being represented using absolute coordinates and data of members of nodes and interpolation points excluding said chosen member, the data being represented using relative coordinates.

Claim 6 (Currently amended): ~~A location information transmission~~ The method according to claim 1, wherein said ~~additional~~attribute information includes at least one information item chosen from a group consisting of road type code, road number, toll highway code, number of traffic lanes, regulation information, road width, number of connecting links to a crossing node, and connection angle of each connecting link to a crossing node.

Claim 7 (Currently amended): ~~A location information transmission~~ The method according to claim 6, wherein said ~~additional~~attribute information includes accuracy information relating to a digital map data used to generate the ~~on-road~~ location information.

Claim 8 (Currently amended): Method for thinning-out a plurality of points representing a road shape by an information transmission system, comprising steps of:

providing a string of coordinates defining said plurality of points, said plurality of points including an interpolation point, P_n, and a preceding interpolation point P_{n-1};

determining a bearing deviation, d_n, of the interpolation point, P_n, from the preceding interpolation point P_{n-1};

determining whether the bearing deviation, d_n, ~~of an interpolation point, P_n, of said string of coordinates from a preceding interpolation point, P_{n-1}, of said string of coordinates~~ is smaller than a predetermined angle, α;

determining whether a distance, g_n, of the interpolation point, P_n, from the preceding interpolation point, P_{n-1}, is shorter than a predetermined length, β; and

omitting the interpolation point, P_n, from the string of coordinates if both $d_n < \alpha$ and $g_n < \beta$ as determined in the determining steps;

transmitting the string of coordinates from which the interpolation point, P_n, is omitted from the information transmission system.

Claim 9 (Previously presented): The method of claim 8, further comprising a step of incrementing the value of n by 1 and then repeating the steps of determining and the step of omitting.

Claim 10 (Previously presented): The method of claim 8 wherein each of the points is represented using relative information based on one of the plurality of points.

Claim 11 (Currently amended): ~~A location information transmission~~ The method according to claim 1, wherein the ~~on-road~~ location information includes relative information indicating an on-road location in said road ~~section~~ segment, the method further comprising a step of performing identifying the on-road location in the road segment~~section~~ using the relative information by the receiver.

Claim 12 (Currently amended): A transmission apparatus comprising:

a digital map;

an information generator that generates, based on the digital map, ~~on-road~~ location information including: ~~a string of coordinates line information~~a list of points on a road segment of the digital map, the points representing a road shape of [[a]]the road ~~section~~segment and ~~additional information including an information item selected from a group consisting of~~attribute information on said points~~road section including a road location of said road section and detailed information on nodes in said road section~~; and

a transmitter that transmits the ~~on-road~~location information to a receiving apparatus having a digital map including data representing the road segment, said data being different from the list of points~~different from the digital map of the transmission apparatus~~.

Claim 13 (Currently amended): A receiving apparatus comprising:
~~a digital map;~~

a receiver that receives ~~on-road~~location information including: ~~a string of coordinates line information~~a list of points on a road segment of the digital map, the points representing a road shape of [[a]]the road segment~~section~~ and ~~additional information including an information item selected from a group consisting of~~ attribute information on said road segment~~section including a road location of said road section and detailed information on nodes in said road section~~ from a transmission apparatus having a digital map:

another digital map including data representing the road segment, said data being different from the list of points; and~~different from the digital map of the receiving apparatus;~~

an identifying unit that performs ~~shape~~ matching <u>of said points with said data</u> to identify said road <u>segments</u>~~section~~ on the<u> other</u> digital map <u>using coordinates information of the points and the attribute information included in the location information</u>~~of the receiving apparatus based on the on-road location information~~.

Claim 14 (New): A method for identifying a location using a first digital map that is different from a second digital map, the method comprising:

creating a list of points on a first road segment of the first digital map, and creating attribute information on said points, wherein each of the points is represented by coordinates and the list of points represents a shape of the first road segment; and

identifying a second road segment on the second digital map corresponding to the first road segment, said identifying including using the list of points and the attribute information, the second digital map including data representing the second road segment, the data being different from the list of points.

Claim 15 (New): The method according to claim 14, wherein said attribute information includes at least one information item chosen from a group consisting of road type code, road number, toll highway code, number of traffic lanes, regulation information, road width, number of connecting links to a crossing node, and connection angle of each connecting link to a crossing node.